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NATIONAL POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEM (NPOESS) PREPARATORY PROJECT (NPP)

MISSION SYSTEM AND OPERATIONS CONCEPT

DATA DICTIONARY

(Volume 2)

July 11, 2000

GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

INTEGRATED PROGRAM OFFICE
SILVER SPRING, MARYLAND

NPP Mission System and Operations Concept

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Data Dictionary

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AccountingStatus (data flow) =
Information on the orders and on customer accounts that will be subsequently be included in mission reports. This may include information on the number of orders fulfilled, number of outstanding orders, accounts in arrears etc.

ActiveGroundStations (data flow) =
provides information on the ground stations that are active for the NPP at this time.

AerosolEDRs (data flow) =
AerosolEDRs consist of Aerosol Particle Size, Aerosol Optical Thickness, and Suspended Matter*.

CH-01

AncillaryData (data flow) =
DEMsLandMasksMapsetc + SurfaceEmissivityMap
ancillary data used in the science and IDPS data processing.

AncillaryDataStore (store) =
Temporary storage of ancillary data, pulled from the archive or mission storage that is needed for upcoming production processing.

AntennaPointingAngles (data flow) =
Control derived WB antenna steering angles.

AntennaPointingCoord (data flow) =
Coordination and status on the positioning of the ground station antenna for receipt of data from the satellite.

AOUserReprocessingRequest (data flow) =
Reprocessing request for individual products that were generated by the Science Data Segment. These may be requested because of a processing error found in the Science Data Segment, or a data corruption error found in the transferring of the data between the processes.

ApplicationDataProductCoord (data flow) =
ApplicationProcessStatus.

ApplicationProcessingCalCoeffs (data flow) =
Files containing the application processing calibration coefficients used to radiometrically and geometrically calibrate and correct the NPP data for the operational user community.

ApplicationProducts (data flow) =
Products from the Application Processing external elements (the Centrals) that are placed into the archive for subsequent distribution to the NPP user community.

ApprovedCommands (data flow) =
Command Loads that have been approved for uplink to the satellite.

Archive (store) =
The NPP Archive, which consists of the RDRs, SDRs, EDRs, ancillary data science calibration coefficients, application processing coefficients and the climate data products that are generated or used for the NPP mission.

ArchiveDataRequest (data flow) =
Request for extraction of data from the ADS archive to fulfill a user request.

ArchivedData (data flow) =
Data which has been retrieved from the archive to satisfy a user product request.

ArchiveProducts (data flow) =
RDRs + SDRs + EDRs.

ArchiveStatus (data flow) =
Status of the archive, which will include information on resources used and available, and archive retrieval and insertion performance information.

ArrayPositioning (data flow) =
Control derived solar array drive steering angles.

AtmosphericEDRs (data flow) =
Atmospherice EDRs consist of Atmospheric Vertical Moisture Profiles, Atmospheric Vertical Temperature Profiles, and Atmospheric Pressure Vertical Profiles.

ATMSAnalogSignal (data flow) =
ATMS radiances that have been converted to analog signals.

ATMSCalibrationTable (store) =
Calibration coefficients which are uplinked from the ground are written to this table to be used by the instrument.

ATMSCalUpdates (data flow) =
Updates of calibration coefficients which are uplinked from the ground to the calibration table to be used by the instrument.

ATMSCommands (data flow) =
ATMSCommands + ATMSCalUpdates
Processed Authenticated Commands sent to the instrument.

ATMSDigitalSignal (data flow) =
Digitized signal converted from the analog signal.

ATMSHealthStatusData (data flow) =
*ATMS Health Status info includes:
- Sensor mode and configuration
- Sensor temperatures
- Sensor supply current and voltage
- Relay status, scan mirror rotation, and other rotating mechanism rates
- Other telemetry data required to support sensor performance evaluation*.

ATMSSciencePkts (data flow) =
ATMS CCSDS formatted packets. Includes converted radiances and Calibration Raw Data Record Packets.

ATMSSDRs (data flow) =
SDRs generated from the ATMS instrument data.

ATMSSoftwareExecutables (data flow) =
Upgraded software executables are being sent to the Controller.

ATMSSoftwareUplinks (data flow) =
Upgraded software executables are being sent to the Accommodate New Software Uplink.

ATMSTelemetryPkts (data flow) =
ATMS CCSDS formatted packets. Includes housekeeping and diagnostic data.

ATMSTempSignal (data flow) =
Passive ATMS temperature signal sent directly to spacecraft.

Attitude (data flow) =
Attitude of the spacecraft.

AuthenticatedCommands (data flow) =
Commands, to the spacecraft, that have been verified for consistency.

Billing (data flow) =
Bills that are provided to the customer for products which have been ordered.

BlackbodyRadiance (data flow) =
Electromagnetic radiation emitted by a black body. In theory, it's the max amount of radiant energy of all wavelengths which can be emitted by a body at a given temperature.

CADUs (data flow) =
Channel Access Data Units that have been formatted to be wideband downlinked.

CalActivityRequest (data flow) =
A request to the mission management function of the C3 segment to schedule a calibration activity such as a lunar maneuver with the spacecraft.

CalDataRequest (data flow) =
A request for calibration data to be retrieved from the SDS mission storage and provided to the SDS calibration processing functions.

CalibrationEventRDRs (data flow) =
Raw Data Records generated with calibration apertures in the FOV of the instruments.

CalibrationRDRs (data flow) =
[GeometricSiteRDRs | LunarRDRs | DeepSpaceLookRDRs | GroundCalRDRs | ValidatedCalRDRs]

RDRs that are captured during the various calibration activities of NPP.

CalibrationReports (data flow) =
Reports containing information on the instrument and calibration performance and processes.

CalibrationSources (data flow) =
Cold Space, Blackbody and other calibration.

CalInstruValProducts (data flow) =
CalProducts + ValidationReports.

ChangeStateDecision (data flow) =
Fail Safe directive to correct spacecraft anomalous condition.

ChannelAmplifiedRadianceSignal (data flow) =
This is an amplified analog signal converted from it's radiance components into the channels.

Char_CalStatistics (store) =
A data store of calibration and characterization of the instrument throughout the mission. Used to analyze instrument performance.

ClimateData (data flow) =
Climate data records that have been processed to the climate parameters to be used by the user community, but which have not yet been put into the appropriate format for the SDS storage, archive or distribution functions.

ClimateProducts (data flow) =
Data products for the global change research community.

CloudEDRs (data flow) =
CloudEDRs consist of Cloud Effective Particle Size, Cloud Cover Layers, Cloud Optical Thickness, Cloud Top Height, Cloud Top Pressure, Cloud Top Temperature, and Cloud Base Height.

CmdLoadFeedback (data flow) =
Feedback on the command load generated from the integrated plan. This includes identification of conflicts, which need to be resolved.

ColdSpaceRadiance (data flow) =
A view to the anti-solar side of the spacecraft above the atmosphere provides a stable nominally absolute black zero radiation signal for calibration of the total signal path.

CombinedRadiances (data flow) =
All radiances collected by the instruments. These may be reflected or emitted radiances.

CommandConstraints (data flow) =
Command constraints that must be adhered to when generating a satellite upload.

CommandReceiptReport (data flow) =
A report of authenticated commands received for verification purposes.

CommandUpload (data flow) =
Commands uploaded to the spacecraft.

ConfigurationCommands (data flow) =
Configuration Commands to downlink WB data.

ContactQualitySummary (data flow) =
Summary information provided to the Manage Satellite operations on a contact basis. Summary information will include statistics on bit sync, frame sync, and VCDU quality.

ContactScheduleCoord (data flow) =
Schedule coordination for the setup of a downlink contact.

ControlCommands (data flow) =
ModeCommands + TimedCommands.

ControlStatus (data flow) =
Assembled Control sensor and status monitors output.

CrISAnalogSignal (data flow) =
CrIS radiances that have been converted to analog signals.

CrISATMSSync (data flow) =
*The CrIS/ATMS sync pulse is used to synchronize the
cross-track scanning of the CrIS and ATMS instruments*.

CrISCalbrationTable (store) =
Table to hold the current version of the CrIS Calibration parameters to be downlinked with the science data.

CrISCalibrationTable (store) =
Calibration coefficients which are uplinked from the ground are written to this table to be used by the instrument.

CrISCalUpdates (data flow) =
Updates to the CrIS calibration information onboard the satellite.

CrISCommands (data flow) =
CrISCommands + CrISCalUpdates
Processed Authenticated Commands sent to the instrument.

CrISDigitalSignal (data flow) =
*CrIS Digitized signal that was converted from its analog component *.

CrISHealthStatusData (data flow) =
*CrIS Health status information which includes:
- Sensor mode and configuration
- Sensor temperatures

- Sensor supply current and voltage
- other telemetry data required to support sensor performance evaluation*.

CrISSciencePkts (data flow) =
CrIS CCSDS formatted packets. Includes Interferogram and Calibration Raw Data Record Packets.

CrISSDRs (data flow) =
SDRs generated from the CrIS instrument data.

CrISSoftwareExecutables (data flow) =
Upgraded software executables are being sent to the Controller.

CrISSoftwareUplinks (data flow) =
Upgraded software executables are being sent to the Accomodate New Software Uplink.

CrISTelemetryPkts (data flow) =
CrIS CCSDS formatted packets. Includes housekeeping and diagnositic data.

CrISTempSignal (data flow) =
Passive CrIS temperature signal sent directly to spacecraft.

DataGranules (data flow) =
Instrument data that has been decompressed, overlap data has been removed, and reformatted into formats compatible with the remainder of the processing functions. For example the data may be broken up into granules of 2 hour chunks similar to the MODIS instrument on the Terra mission to facilitate processing.

DecompressedData (data flow) =
NPP RDRs which has been decompressed using the algorithms corresponding the compression techniques used by the individual instruments.

DeepSpaceLookRDRs (data flow) =
Raw Data Records generated with deep space in the FOV of the instruments.

DEMsLandMasksMapsetc (data flow) =
Ancillary data used in the processing of the instrument data to create EDRs or science climate records. This includes Digital Elevation Models, Land Masks, Land Maps etc.

DigitizedWidebandStream (data flow) =
Wideband or Stored mission data that has been received from the satellite and digitized.

DistributionControl (data flow) =
Provides control to the format and distribute function. This may include prioritization or certain data, starting of certain processes etc.

DistributionStatus (data flow) =
Status of the format and distribution functions and processed.

DownlinkConfigCommands (data flow) =
Commands for configuring the narrow band downlink.

DownlinkQualityStatus (data flow) =
Downlink quality status on the preprocessing functions which will include quality information on the VCDUs etc.

EarthSceneRadiance (data flow) =
Radiance emitted and/or reflected by the earth.

EDRs (data flow) =
Data records that contain the environmental parameters or imagery required to be generated as user products as well as any ancillary data required to identify or interpret these parameters or images. EDRs are generally produced by applying an appropriate set of algorithms to Raw Data Records (RDRs).

EncryptedCCSDSCmdLoads (data flow) =
Command loads that have been forwarded from the C3 segment for upload to the satellite.

EncryptedRTCCSDSCmds (data flow) =
Real TimeCommand loads that have been forwarded for upload to the satellite.

EngUnits (data flow) =
Satellite telemetry data that has been converted to engineering units for analysis and evaluation.

Ephemeris (data flow) =
Spacecraft position derived from GPS Navigation Signal.

EvaluationResults (data flow) =
Results of instrument and performance evaluation that is used to determine if new cal coefficient files should be generated or if calibration maneuvers should be scheduled.

FailsafeControlStatusFromAllFunctions (data flow) =
Failsafe control status from all functions.

FailSafeResetCommand (data flow) =
Commands for resetting the fail safe spacecraft functions.

FailSafeStatus (data flow) =
Assembled Fail Safe sensor and status monitors output.

FlightSWUpdate (data flow) =
Flight software updates made as a result of a request.

FlightSWupdateReq (data flow) =
Request for a flight software update.

FormatandDistributionStatus (data flow) =
Status of the format and distribution processes and reports on space used and available, data distribution reports and performance measurements.

FormattedClimateData (data flow) =
Formatted higher level Science products that are ready for ingest and distribution by the archive function. This formatted science data may be made available from the Science Data Segment or from individual Science community AO data suppliers.

FormattedLevel1BData (data flow) =
Level 1B data which has been formatted by the Science Data Segment for ingest by the Archive function. It includes browse and metadata.

Gains_Biases (data flow) =
The gains and biases generated by looking at the calibration sources of the instruments.

GeolocatedData (data flow) =
Data granules that have been geo-located using information downlinked in the science data streams.

GeometricSiteRDRs (data flow) =
Raw Data Records generated with a geometric calibration site in the FOV of the instruments.

GPSDerivedTime (data flow) =
Time derived from the GPS signal.

GPSNavigationalSignal (data flow) =
GPSPositionSignal + GPSTimeSignal.

GPSPositionSignal (data flow) =
provides the gps position of the satellite.

GPSTimeSignal (data flow) =
Provides time from the GPS spacecraft.

GroundCalRDRs (data flow) =
Raw Data Records generated with a radiometric ground calibration site in the FOV of the instruments.

GroundStationLocations (data flow) =
Locations of the ground stations.

HRDBroadcast (data flow) =
Immediately transmitted CADUs.

IDPSSoftwareandDocumentation (data flow) =
IDPS software and documentation used in the production processing.

IngestControl (data flow) =
Control provided to the ingest function. This may include control for setting up for contacts, etc..

IngestStatus (data flow) =
Provides status of the Ingest RDRs function. This includes reporting status of the ingest tasks, reporting of ingest errors and reporting of resource utilization.

InstrumentCalUpdates (data flow) =
Updates to the onboard instrument calibration tables that are provided to the C3 segment for upload to the satellite.

IntegratedPlan (data flow) =
Integrated NPP mission plan that is used to generate necessary command loads to execute the plan.

InternalCalData (data flow) =
Data collected on-board the spacecraft from the instrument internal calibration sources.

IOOCalUpdates (data flow) =
Updates to the IOO calibration parameters kept on board the satellite.

IOOCommands (data flow) =
processed Authenticated Commands sent to the instrument.

IOOSciencePkts (data flow) =
IOO CCSDS formatted packets. Includes converted radiances and Calibration Raw Data Record Packets.

IOOTelemetryPkts (data flow) =
IOO CCSDS formatted packets. Includes housekeeping and diagnositic data.

IOOTempSignal (data flow) =
Passive IOO temperature signal sent directly to spacecraft.

LandEDRs (data flow) =
LandEDRs consist of Imagery, NDVI, Surface Albedo, Vegatation Surface Type, and Surface Classification.

Level1BDataPackage (data flow) =
Includes data which has been radiometrically corrected and geometrically located metadata and browse images.

LowRateData (data flow) =
Low rate science data generated by the VIIRS instrument.

LunarRDRs (data flow) =
Raw Data Records generated with the moon in the FOV of the instruments.

MemoryDump (data flow) =
On-Board Control Storage Dump.

MemoryLoad (data flow) =
StarUploads + GroundStationLocations*not-defined*.

MissionGuidance (data flow) =
*For the Science Data Segment mission guidance is a reprocessing direction or direction of prioritizing the generatation of a particular product.

For the IDPS mission guidance is direction of prioritization of the product generation.

For the C3 this is information on maneuvers etc.

For the ADS, Data Archive Management Guidance will be provided from the C3 Mission Management function*.

MissionReports (data flow) =
*For the SDS and IDPS, mission reports will include production reports on products generated and distributed for the time period of the report. It will also include system performance information retrieved from the science calibration functions. Error reports will be generated on an as needed basis to communicate significant error conditions within the IDPS or SDS to the mission management function

For the Archive and Distribution Segments reports will include production reports for the orders received and fulfilled for the time period of the report. Information on billing and accounting will also be included. It will also include ADS performance information such as timelines for order fulfillment etc.

Errors generated as necessary

Mission Reports generated by the C3 segment include information on the status of the spacecraft and ground stations*.

MissionStatus (data flow) =
Status of the mission included current versions of the production software, notes on mission performance, etc. that is provided to the general user community to keep them informed.

MissionStorageProducts (data flow) =
ProcessedCalibrationData + ValidatedRDRs + FormattedLevel1BData
+ScienceCalCoefficients
Data that will be kept in the SDS storage for mission life.

MissionStorageQueries (data flow) =
Queries on the contents of the SDS mission storage.

MissionStorageResponses (data flow) =
Responses to queries on the SDS mission storage contents.

MissionStorageStatus (data flow) =
Status of the mission storage processes and of the mission storage itself including reporting of space used and available, data retrieval from the storage performance measurements and insertation performance measurements.

MnemonicCmdLoad (data flow) =
Command loads generated to execute the NPP mission plan.

ModeCommands (data flow) =
NormalOperationsModeCommand +
SafeholdModeCommand+CalibrationModeCommand.

MotorControlandSyncCommands (data flow) =
Motor Sync Signals from the controller to the sensor motor.

MotorControlFeedbackData (data flow) =
Feedback data from the sensor motor back to the Controller to aid in the control of the motor.

OceanEDRs (data flow) =
OceanEDRs consist of Net Heat Flux, Littoral Sediment Transport, Ocean Color Chlorophyll, and Ocean Currents.

OrderNotification (data flow) =
Notification that a valid order has been received. The notification is sent so that payment for the product can be rendered prior to the generation and shipment of the product.

OrderStatus (data flow) =
Status of user orders that have been placed for data from the archive.

OrderValidationInformation (data flow) =
Information that will allow for the validation of user orders that are received. This will include information on the status of user registration, and the current state of the user accounts.

OutofLimits (data flow) =
Fail Safe status monitor parameters exceeding allowed limits.

PacketizedData (data flow) =
Packetized data, which includes housekeeping data, converted radiances and calibration data for transmission to the spacecraft interface.

PaymentNotification (data flow) =
A notification that payment has been made for a particular order. This will allow the production and distribution of the product to be completed.

Payments (data flow) =
Payments by the customer for ordered products.

PBDigitizedTelemetryStream (data flow) =
Playback telemetry data that has been received from the satellite and digitized.

PBVCSortedCADUs (data flow) =
Playback or Stored Mission Data virtual channels that have been prioritized for rate buffering.

PlanningAids (data flow) =
Flight dynamics planning aids such as those that are used to coordinate the communication with the satellite.

PreprocessCoord (data flow) =
Coordination for the setup and status of the preprocessing functions.

PrioritizedCADUs (data flow) =
Channel Access Data Units delivered from the NPP ground stations in a prioritized manner.

ProcessedCalData (data flow) =
Internal calibration data that has been processed to produce radiometric gains and offsets that may be used to radiometrically correct the data.

ProcessedCalibrationData (data flow) =
Calibration data, either from instrument internal calibration sources, or data taken during a calibration event, that has been processed by the science processing algorithms. This data will be saved in the mission storage for potential later comparisons and analysis.

ProcessedOrder (data flow) =
A order that has been fulfilled, the products have been generated and are ready for shipment to the customer.

ProcessingControl (data flow) =
Provides control of the IDPS production processing. This includes schedules for processing if needed, processing prioritization etc.

ProcessingDirection (data flow) =
IDPS direction on processing priorities, resource usage etc.

ProcessingInformation (data flow) =
Information necessary to complete the processing of the RDRs. This includes information on the location data, processing parameters, priorities etc.

ProcessingStatus (data flow) =
Production processing status for the IDPS. This includes information on the processing processes, the status of data within the production queue and reporting of potential errors in the processing.

ProcessStatus (data flow) =
ApplicationProcessStatus + ScienceProcessStatus.

ProductionSchedules (data flow) =
Provides the schedules for the Level 1B science data. Schedules are approximate given known contact times for the spacecraft downlink and approximations of the processing time required to receive RDRs from the IDPS. Production schedules also include schedules for reprocessing based on requests.

ProductionStatus (data flow) =
Status of the Level 1B processes. Includes information and status on what processing has been accomplished or is in progress, what resources are available, performance measures and information on error conditions and failed processing.

ProductRequests (data flow) =
Requests from the user community for NPP products.

Products (data flow) =
[RDRs |SDRs |EDRs |ClimateProducts]
NPP products that are provided to the user community upon request. These products satisfy both the science and application user communities.

ProductSubscriptions (data flow) =
Subscriptions for product delivery from the IDPS. This can be for RDRs, SDRs or EDRs. The subscription can be one time or a standing subscription.

PTCommands (data flow) =
Validated Commands to the Manage Electrical and Thermal Power.

PTStatus (data flow) =
Control derived solar array drive steering angles.

QualityReport (data flow) =
Quality reports generated by the SN for data downlinked at those sites. | CH-01

Queries (data flow) =
Queries on the archive holdings and/or on the status of user orders.

QueryResponse (data flow) =
Responses to queries on the archive holdings or on the status of a user order. The responses are formatted and displayed to the requestor.

Radiance (data flow) =
[EarthSceneRadiance | CalibrationSources | ColdSpaceRadiance | StarRadiance].

RadiometricallyCorrectedData (data flow) =
RDRs that have been radiometrically corrected (correction is applied).

RDRs (data flow) =
*Full resolution, uprocessed digital sensor data, time-referenced and earth (GEO) located (or orbit-located for in-situ measurements), with radiomentric and geometric calibration coefficients appended, but not applied, to the data. Aggregates (sums or weighted averages of detector samples are considered to be full resolution data if the aggregation is normally performed to meet resolution and other requirements. Sensor

data should be unprocessed with the following exceptions: time delay and integration (TDI), detector array non-uniformity correction (i.e. offset and responsivity equalization), and lossless data compression are allowed. All calibration data will be retained and communicated to the ground without lossy compression. Note that for the real time transmission of raw data to field terminals, lossy compression is allowed. Additionally, reduced resolution is allowed in transmission of raw data to low data rate field terminals*.

RDRSDREDRs (data flow) =
RDRs + SDRs + EDRs.

RDRsSDRsEDRs (data flow) =
[RDRs | SDRs | EDRs | CalibrationRDRs]
A composite of the RDRs, SDRs, and EDRs that are generated by the IDPS.

ReceiptReport (data flow) =
Report on the cadus that have been received by the IDPS. Used to verify that all the data has been received from the ground station, or is scheduled for retransmission.

ReconfigurationCommands (data flow) =
Corrective Fail Safe spacecraft commands.

ReconfigurationCommandsToAllFunctions (data flow) =
Reconfiguration Commands to all functions for taking corrective actions.

ReconfigurationCommandstoallfunctions (data flow) =
Fail Safe Corrective Action commands.

ReferenceStars (data flow) =
Pre-Calculated locations of Celestial stars to compare with seen star radiances.

ReformattedRDRs (data flow) =
RDRs which have been internally reformatted by the IDPS to facilitate further processing.

ReprocessingRequests (data flow) =
Detailed requests for the reprocessing of data. Includes information to trace the request back to the originator (i.e. the Mission Management or a particular Science Team member). Also includes details on the data to be processed, parameters and ancillary data to be used in the processing.

RetransmitRequest (data flow) =
A request to retransmit all or part of a downlink because the data was not successfully received at the IDPS or C3.

RetrievalCommands (data flow) =
Commands given to retrieve SMD.

RetrievedCommands (data flow) =
Commands retrieved from command store for processing at designated SC time.

RetrievedMemoryDump (data flow) =
Retrieval of stored memory dump.

RetrievedMissionCADUs (data flow) =
Mission data that has been stored and now retrieved to be downlinked.

RetrievedStoreandForwardData (data flow) =
Telemetry data retrieved for narrowband downlink at designated SC time.

ReturnLinkQASummary (data flow) =
Report on the quality of the NPP downlink. Includes statistics on Reed Solomon errors detected and corrected, missing CADUs, bit slips, frame sync errors, packet reassembly errors etc.

RTCommandUplink (data flow) =
Immediately transmitted commands uplinked to the spacecraft.

RTData (data flow) =
Data to be downlinked immediately.

RTDigitizedTelemetryStream (data flow) =
Real time telemetry data that has been received from the satellite and digitized.

RTVCSortedCADUs (data flow) =
*Real time Virtual channels that have been prioritized for rate buffer *.

SatActivityReqCoord (data flow) =
Coordination for the planning of a mission event such as a calibration manuever.

SatDatabase (store) =
Data base containing the Satellite databases which includes telemetry format information, units of measure information etc.

SatelliteParameterInfo (data flow) =
Spacecraft parameter information such as units of measure and data location within the telemetry which is used to interpret and create engineering units from the downlinked state of health telemetry.

SatEphemeris (data flow) =
Spacecraft ephemeris data that is used in the building of command loads to be uplinked to the satellite.

SatLoadUplink (data flow) =
Command loads that are uplinked to the satellite includes real time commands and stored command loads from the polar ground stations.

SatLoadValidationStatus (data flow) =
Validation status of the satellite upload to insure that the upload has been received correctly.

SatManueverCoord (data flow) =
Coordination and feedback on the analysis and planning for a spacecraft maneuver such as a calibration maneuver.

SatPosition_Velocity (data flow) =
information on the spacecraft position and velocity.

SatSOHTelemetry (data flow) =
Satellite state of health data that is transmitted to the C3 segment for evaluation.

SBandDownlink (data flow) =
[SBandRTDownlink | SBandStoredDownlink]
SBand data provided to the SN, this can be real time or stored SBand data. | CH-01

SBandRTDownlink (data flow) =
Immediately transmitted RT Data.

SBandStoredDownlink (data flow) =
Timed transmitted Retrieved Store and Forward Data.

SCExecutedCommandHistory (data flow) =
History of Commands that has been executed by the spacecraft.

ScheduleAncillaryIngest (data flow) =
Provides the schedules for the Ingest of Ancillary data from the external sources which necessary to complete Level 1B processing or the selected higher level processing being done within the Science Data Segment.

ScienceCalCoefficients (data flow) =
Calibration coeffients and information that is used to perform the radiometric and geometric corrections for the science data products.

ScienceCalCoefficientsFiles (data flow) =
Files containing the science calibration coefficients used to radiometrically and geometrically calibrate and correct the NPP data for the scientific user community.

SCSoftwareUpdates (data flow) =
Updates for the spacecraft flight software.

SCTelemetry (data flow) =
ControlStatus + WBCommStatus + PTStatus + FailSafeStatus + SCTime + MemoryDump + RetrievedMemoryDump + CommandEcho + SCExecutedCommandHistory.

SCTime (data flow) =
Processed GPS Time Signal.

SDRs (data flow) =
*Full resolution sensor data that are time referenced, earth (GEO) located (or orbit-located for in-situ measurements), and calibrated by applying the ancillary information including radiometric and geometric calibration coefficients and georeferencing

parameters such as platform ephemeris. These data are processed to sensor units (e.g. radar backscatter cross section, brightness temperature, radiance, etc.). Calibration, ephemeris, and any other ancillary data necessary to convert the sensor units back to sensor raw data (counts) are included*.

SDRsEDRs (data flow) =
[SDRs | EDRs]
A composite of SDRs and EDRs.

SDSCalProcessingControl (data flow) =
Provides control to the calibration processing including schedules and direction for when to perform calibration processing.

SDSIngestControl (data flow) =
Information to control the ingest function. This may include information on schedules for the expected receipt of data, prioritization information etc.

SDSIngestStatus (data flow) =
Status gathered during the ingest function, which can include resource information, status of the ingest processes, or status of the ingest of data into the system.

SDSProcessingControl (data flow) =
Provides control of the Science Data Segment Production processing. This includes schedules for processing if needed, processing prioritization etc.

SDSProductionStatus (data flow) =
Production processing status for the Science Data Segment. This includes information on the processing processes, the status of data within the production queue and reporting of potential errors in the processing.

SDSSoftwareandDocumentation (data flow) =
Software and documentation used in the SDS production processing. Made available to users as a product.

ShippingNotification (data flow) =
Notification that the products have been shipped to the customer. Indicates that the order can be closed out.

SimulatedSOHTelemetry (data flow) =
Satellite simulated state of health information that is generated as a result of a test upload.

SMDDownlink (data flow) =
NPP Stored Mission Data that is downlinked from the satellite, this can be either stored data cadus or preamble used to establish lock on the spacecraft prior to dumping the recorder.

SMDRequest (data flow) =
Request for data to be retrieved from the on board mission storage in order to be downlinked to the ground.

SnowIceEDRs (data flow) =
SnowIceEDRs consist of Sea Ice Edge Motion, Snow Cover Depth and Fresh Water Ice.

SNSchedule (data flow) =
Space network schedule or feedback in response to a schedule request.

SNScheduleRequest (data flow) =
*Request for a Space Network contact. *

SpacecraftDiary (data flow) =
SatPosition_Velocity + Ephemeris + SCTime + SCTelemetry + Temps.

SpacecraftDiaryStore (store) =
Storage within the instruments for the spacecraft diary information to be included in the science data downlink.

StagedData (data flow) =
Data retrieved from the mission storage and placed in the on-line storage for reprocessing or further analysis. Includes the raw data and any requested ancillary data needed in the reprocessing, as well as selected processed data that is kept in the mission storage such as processed calibration data.

StagingRequests (data flow) =
Identification of the data to be pulled from the mission storage for reprocessing.

StarRadiance (data flow) =
Radiances, from the Star Tracker, of celestial stars to compare with the reference stars.

StarUploads (data flow) =
Data on locations of stars.

StorageControl (data flow) =
Provides control to the IDPS storage as necessary. This can include information on what should be deleted from the storage etc.

StorageStatus (data flow) =
Status of the mission storage processes and resource used and available within the IDPS storage function.

StoreandForwardData (data flow) =
Spacecraft telemetry data stored for NB downlink at designated SC time.

StoredAncillaryData (data flow) =
DEMsLandMasksMapsetc + SurfaceEmissivityMap
Ancillary data that has been retrieved and placed into the IDPS temporary storage.

StoredCommands (data flow) =
Spacecraft commands stored for future processing at designated S/C time.

StoredData (data flow) =
Data stored in the IDPS mission storage that is ready for format and distribution to the interfacing elements (i.e. Centrals, SDS, and ADS).

StoredMissionCADUS (data flow) =
Mission data to be stored to be later retrieved and downlinked during a flyover.

StoredMissionCADUs (data flow) =
Cadus to be stored in the solid state recorder for later downlink.

StoredRDRs (data flow) =
RDRs that have been placed in the IDPS temporary storage for further processing.

SurfaceEmissivityMap (data flow) =
Surface Emissivity Map is ancillary data used to generate EDRs and science climate data records.

SurfacePressure (data flow) =
Surface Pressure EDRs needed to produce the Ocean Products.

SurfaceReflectance (data flow) =
Surface Reflectance EDRs needed to generate the Snow and Ice Products.

SurfaceTemperature (data flow) =
Surface Temperature EDRs needed to produce the Snow and Ice products.

SurfaceTemperatureEDRs (data flow) =
SurfaceTemperatureEDRs consist of Land Surface Temperatures, Sea Surface Temperatures, Precipitable Water, Fire, and Ice Surface Temperatures.

TelemetryCommands (data flow) =
Commands to configure the narrowband being gathered and formatted on the spacecraft.

TelemetryDownlinkCoord (data flow) =
Coordination on the setup for the receipt of Telemetry Sband data at the ground station.

TelemetryOrbitAttData (data flow) =
Orbit and Attitude data that have been extracted from the satellite telemetry downlink data.

TempCADUStorage (store) =
A temporary data store at the ground station for the received CADUS.

TemporaryDataStore (store) =
VIIRSSDRs + SurfacePressure + ATMSSDRs + AerosolEDRs + CloudEDRs + CrISSDRs + SDRs + LandEDRs + OceanEDRs + SnowIceEDRs + AtmosphericEDRs + VerticalTemperatureProfile + VerticalMoistureProfile + SurfaceTemperature + VerticalPressureProfile + SurfaceReflectance + SurfaceTemperatureEDRs
Temporary data store for the SDR and EDR processing.

Temps (data flow) =
Spacecraft thermistor output.

TestCommands (data flow) =
SC Test Commands to be sent to the spacecraft.

TestLoad (data flow) =
Test flight software load update.

TestTelemetry (data flow) =
SC Telemetry for ground test operations.

TimeCode (data flow) =
Time stamp derived from the SCTime which is the processed GPS Time Signal.

TimedCommands (data flow) =
Commands in sync with SCTime.

TrendingAnalysisInfo (data flow) =
Trending analysis information that is iterated with the planning function in order to properly plan mission events.

TrendingEngAnalysisInfo (data flow) =
Trending and analysis data used to maintain the satellite database.

TrendingParms (data flow) =
Parameters and statistics gathered through the processing which can be monitored and analyzed to determine short and long term instrument performance e.g. histograms.

UpdateCalCoeffsInformation (data flow) =
Direction to create/update new science calibration coefficient information to be used in the science processing.

UplinkCoord (data flow) =
*Coordination for the setup for uplink of satellite command loads *.

UplinkSchedule (data flow) =
Schedule for upcoming satellite command uploads.

UserQueryResponse (data flow) =
Responses to queries on the archive holdings.

ValidatedAncillaryData (data flow) =
Data that has been retrieved from ancillary data sources, validated, and will be placed into the archive.

ValidatedCalRDRs (data flow) =
Raw Data Records generated with the internal calibration sources in the FOV of the instruments.

ValidatedData (data flow) =
Data which has been ingested and validated for insertion into the archive.

ValidatedOrder (data flow) =
An order placed by a requestor that has been validated. Validation will include verifying that all of the information necessary for the order completion is provided and correct, as well as verification that the user has an active up to date account.

ValidatedQueries (data flow) =
Queries on the archive holdings which have been validated.

ValidatedRDRs (data flow) =
RDRs which have been ingested and gone through the validation process described in the Ingest RDRs Pspec.

VCPrioritizationScheme (data flow) =
Information on the priority of the NPP VCDUs. VCDUs with the highest priority will be placed in the front of the rate buffer queue for transmission to the IDPS or C3 for housekeeping data.

VerticalMoistureProfile (data flow) =
The vertical moisture profile generated from the sounder suite.

VerticalPressureProfile (data flow) =
The vertical pressure profile generated from the sounder instrument suite.

VerticalTemperatureProfile (data flow) =
The vertical temperature profile generated from the sounder suite.

VIIRSCaibrationTable (store) =
Calibration coefficients, which are uplinked from the ground are written to this table to be used by the instrument.

VIIRSCalUpdates (data flow) =
Updates to the VIIRS calibration parameters on board the satellite.

VIIRSCommands (data flow) =
VIIRSCommands + VIIRSCalUpdates
Processed Authenticated Commands sent to the instrument.

VIIRSHealthStatusData (data flow) =
*ATMS Health Status info includes:
- Sensor mode and configuration
- Sensor temperatures
- Sensor supply current and voltage
- Relay status, scan mirror rotation, and other rotating mechanism rates
- Other telemetry data required to support sensor performance evaluation*.

VIIRSSciencePkts (data flow) =
VIIRS CCSDS formatted packets. Includes converted radiances and Calibration Raw Data Record Packets.

VIIRSSDRs (data flow) =
SDRS generated from the VIIRS instrument data.

VIIRSSoftwareExecutables (data flow) =
Upgraded software executables are being sent to the Controller.

VIIRSSoftwareUplinks (data flow) =
Upgraded software executables are being sent to the Accommodate New Software Uplink.

VIIRSTelemetryPkts (data flow) =
VIIRS CCSDS formatted packets. Includes housekeeping and diagnostic data.

VIIRSTempSignal (data flow) =
Passive VIIRS temperature signal sent directly to spacecraft.

WBCommCommands (data flow) =
RetrievalCommands + ConfigurationCommands*not-defined*.

WBCommStatus (data flow) =
Assembled WB sensor and status monitors output.

WBDownlinkSchedules (data flow) =
Schedules for the upcoming Wideband downlinks for each NPP ground station.

WidebandDownlinkConfigCoord (data flow) =
Coordination on the setup for the receipt of stored mission data in an upcoming downlink period.

XferCoord (data flow) =
Coordination between the SDS and the ADS for the transfer of data to the archive. The coordination includes verifying available resources, acknowledging the successful receipt of the data and trouble shooting any transfer problems.

XferredReport (data flow) =
Information on the cadus that the ground station has sent out to the C3 and IDPS segments.